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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,659	11/28/2001	Manabu Kagami	P 284170	8435

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T36-137764M/KOH

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/994,659

Applicant(s)

KAGAMI ET AL.

Examiner

Martin J. Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/10/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 35-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 35-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments are presented after the first rejection to which they are directed. The response and comments in the interview summary of June 1, 2006 and the advisory action of 11/3/2005 are incorporated here. The examiner strongly suggests the applicant adding language to differentiate between the Kasami et al. references and the instant claims, particularly noting the use of 488 writing light followed by a blanket exposure with 325 nm light, rather than 325 nm writing light and deeper UV used in the Kagami et al. references. This suggests the use of spectral sensitizers or two very different photoinitiators [0113] in the present invention.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-28 and 38-39 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Kagami et al. JP 2000-347043.

Kagami et al. JP 2000-347043 (different inventive entity from instant application) teaches dipping an optical fiber into a solution of a mixture of photocurable monomers, irradiating the solution through the fiber with a first wavelength to selectively cure one of the monomers and form a waveguiding core (figures 3 a-c), followed by irradiating uniformly from the sides with a second wavelength to form a cladding (figure 3d) [0039-0040] and example 1 [0032]. The formation of step index waveguides is disclosed with respect to figure 4 [0041]. The formation of graded waveguides is disclosed with respect to figure 6 [0048]. Formulae describing the propagation of the light as a function of the refractive indices appear throughout the reference (and the machine translation thereof accompanying this action). The use of an **acrylic monomer** system (free radical) and an **epoxy monomer** system (cationic) is clearly disclosed [0034]. The acrylic monomer (A) is disclosed as having a higher sensitivity than the epoxy (B) monomer in figure 2 and wavelength 1 is shown to be shorter than the longest wavelength able to cure monomer A, but longer than that able to cure monomer B.

The applicant argues that the selective use of free-radical or cationic polymerization is not taught. This is entirely incorrect and without merit. The applicant is directed to the use of acrylic monomers, which undergo free radical polymerization and epoxy monomers which undergo cationic polymerization and their different spectral sensitivities as shown in figure 3, which is identical to figure 17 of the instant specification. The fact that they have different spectral sensitivities as evidenced by figure 3 and the disclosure of separate curing of the first monomer in the cited example followed by the simultaneous curing of both meets the limitation of the claims clearly evidences that the disclosed methods anticipate the broadly claimed invention. The examiner points to the example of section [0034], which specifically describe an

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acrylic and epoxy monomer mixture. The broadly claimed invention of the cited claims is anticipated by the cited Japanese publication and in the now allowed US application to the same assignee. Drafting the claims of the instant application so that they do not overlap with the disclosures of the cited Japanese publication and the corresponding allowed US application would reduce the issues. The rejection stands.

The applicant had argued that the epoxy was not cured by cationic polymerization. The examiner notes that the applicants specifically describe the use of epoxies in the instant specification and in claim 38. The also examiner points to the use of cationic polymerization mechanism of curing epoxies within the art as evidenced by Kawabata et al. '494. The features argued as not taught are clearly taught in the portion of the reference cited, please note the same figures are used and show the same type of curing as those in the instant application. To suggest that the reference is not functioning in the manner disclosed in that reference (ie photopolymerization takes place with respect to the first irradiation) is without merit as the different spectral sensitivity shown in figure 2 specifically addresses this issue. The applicant could obviate this rejection by perfecting priority. This could also be addressed by a sworn declaration by one of the common inventors specifically stating that the epoxy used was not cured using a cationic mechanism as the applicants are in a position to address this question of fact.

The applicant is arguing that the epoxies disclosed are not cationically cured. To rebut this the examiner has pointed both the Kawabata et al. and the applicants's own specification to address the issue of this being inherent. The position of the examiner being that it is somewhat untenable for the applicant to adopt a position divergent from thier own specification. If this is

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really the position that the applicant wishes to adopt, **the examiner agrees this is a factual question that the one of the applicants of the instant application and also named as an inventor in the Kagami et al. JP 2000-347043 and Kagami et al. '188 references applied can address this in a declaration. *The declaration would have to state at least that they are familiar with the Kagami et al. JP 2000-347043 or Kagami et al. '188 references and the experiments disclosed therein, disclose the compositions used including any photoinitiation systems used in these experiments and state for the record that any photoinitiation systems used do not induce cationic or radical photopolymerization.*** Clearly as the The acrylic monomer (A) is disclosed as having a higher sensitivity than the epoxy (B) monomer in figure 2 and wavelength 1 is shown to be shorter than the longest wavelength able to cure monomer A, but longer than that able to cure monomer B, the separate curing precludes them from curing by the same mechanism. The citation of Kawabata et al. is presented to evidence that the epoxies inherently photocure cationically and to thereby support the position that the separate photocuring is by a cationic polymerization mechanism as this is known in the art. Upon receiving this declaration addressing the facts of the experiments of Kagami et al. JP 2000-347043 and Kagami et al. '188, the examiner would reassess the position and based upon the quality of the evidence in the declaration and the statements therein may withdraw the rejections based upon Kagami et al. JP 2000-347043 and Kagami et al. '188. The examiner is not aware of anionic photopolymerization of epoxies being used within the optical waveguide arts. The applicant has declined to address this question of fact (page 25 of the response) merely stating that the photoinitiation system is not disclosed. The examiner holds the position that the epoxy does not photocure on its own, particularly at a different portion of the spectrum from the

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radically polymerizable composition. The examiner notes that the earliest filing date is before the publication date of the reference.

5. Claims 1-28 and 38-39 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Kagami et al. '188 (which matured from application 09/534458).

Kagami et al. '188 (different inventive entity from instant application) teaches dipping an optical fiber into a solution of a mixture of photocurable monomers, irradiating the solution through the fiber with a first wavelength to selectively cure one of the monomers and form a waveguiding core (figures 3 a-c), followed by irradiating uniformly from the sides with a second wavelength to form a cladding (figure 3d) (11/44-12/15) and example 1 (9/32-11/40). The formation of step index waveguides is disclosed with respect to figure 4 (12/15-33). The formation of graded waveguides is disclosed with respect to figure 6 (13/39-14/20). Formulae describing the propagation of the light as a function of the refractive indices appear throughout the reference. The use of an **acrylic monomer** system (free radical) and an **epoxy monomer** system (cationic) is clearly disclosed (10/1-10). The acrylic monomer (A) is disclosed as having a higher sensitivity than the epoxy (B) monomer in figure 2 and wavelength 1 is shown to be shorter than the longest wavelength able to cure monomer A, but longer than that able to cure monomer B. This could also be addressed by a sworn declaration by one of the common inventors specifically stating that the epoxy used was not cured using a cationic mechanism as the applicants are in a position to address this question of fact.

In addition to the above the examiner notes that if the reference was not anticipatory and the instant application and Kagami et al. '188 were commonly owned, then the applicant would

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have the ability to exclude the use of Kagami et al. '188 in a 103, under 103(c) by a mere statement of the applicant's representative.

6. Claims 1-28 and 38-39 are rejected under 35 U.S.C. 103(a,c) as being unpatentable over Kagami et al. JP 2000-347043 or Kagami et al. '188, in view of Kawabata et al. '494.

Kawabata et al. '494 teaches the use of cationically curable materials (epoxies) mixed with free radically curable species (acrylates) and the separate curing of one of these via proper wavelength selection to facilitate refractive index imaging. (abstract, 1/31-37 and examples). Specific cationically curable materials include epoxies, polyglycidyl ethers, glycidyl ethers, and others (3/20-64). Useful free radically curable materials include acrylates, methacrylates, and others. (3/65-4/40).

It would have been obvious to use cationically and free radically curable monomers known to be useful in refractive index imaging with selective curing, such as those disclosed by Kawabata et al. '494 in place of the acrylates and epoxies specifically disclosed in the examples of Kagami et al. JP 2000-347043 or copending Application No. 09/534458 with a reasonable expectation of success based upon the disclosure of equivalence in refractive index modulation by Kawabata et al. '494.

The applicant argues that the burden of prima facie has not been met. The examiner disagrees, noting that the use of photoinitiation systems, such as those disclosed by Kawabata et al. '494 as useful with acrylate and epoxide system and allowing them to be separately cured would be desirable additions to the compositions of either Kagami et al. JP 2000-347043 or Kagami et al. '188 to increase the photosensitivity of the acrylate and/or epoxies as well as increase their spectral sensitivity. The rejection stands.

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7. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-320422, in view of Anderson 702 and Kagami et al. JP 2000-347043.

JP 08-320422 teaches coupling various optical elements together, including laser diodes and optical fibers as shown in figures 58 and 62. The use of exposure from both direction is disclosed to facilitate improved coupling (lens like formation). Adjustment of the alignment is not disclosed. Note the disclosure with respect to figure 5.

Anderson '702 establishes that it is old and well known in the art to position the optical fiber for maximum power transfer from the diode laser prior to curing the epoxy using light (4/9-26)

It would have been obvious to one skilled in the art to modify the invention of JP 08-320422 by performing an alignment to maximize coupling efficiency as taught by Anderson '702 as this is old and well known in the art and further, it would have been obvious to one skilled in the art to modify the invention of JP 08-320422 combined with Anderson 702 by using the composition and two step curing of Kagami et al. JP 2000-347043 to improve the refractive index control of the core Vs. the cladding layers.

The applicant's arguments that the references applied are unrelated fails to appreciate the fact that they are all within the filed of fiber optics and waveguiding of light. The exposure from both directions to facilitate curing is not required by the claims and further, the use of two directions for exposure is disclosed by JP 08-320422. The optical transmission module is merely the optical connection between the fiber optical and other optical elements, such as detectors and the like. The examiner also notes that the formed articles clearly deal with waveguiding devices. The rejection stands for the reasons of record.

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8. Claims 1-28 and 38-39 of this application conflict with claims 1-8 and 11 of Kagami et al. '188.

37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The declaration suggested by the examiner could address this issue as well. Irrespective of any ownership issues, maintaining patentable distinctness between claims is clearly desirable.

9. Claims 1-28 and 38-39 are directed to the same invention as that of claims 1-8 and 11 of Kagami et al. '188. The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since the basis for refusing more than one patent is priority of invention under 35 U.S.C. 102(f) or (g) and not an extension of monopoly.

The applicant argues that they are not commonly assigned. The examiner points out that the assignees are both divisions of Toyota and that there are inventors in common. If the applicant continues to assert that these are in fact two different entities, then perhaps interference

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proceedings should occur. The assignees are invited to initiate such a procedure when the instant claims are otherwise allowable. This rejection is maintained until such time as interference proceedings are initiated. It is not clear what the relationship between these two division of Toyota are. If the applicant continues to assert that they are separate entities, then the applicant should request an interference under rule 37 CFR 1.607.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7/2/06


Martin J. Angebranndt
Primary Examiner
AU-1756